



ENVIRONMENTAL PROTECTION AGENCY

[FRL 9912-46-OAR]

Office of Research and Development;

**Ambient Air Monitoring Reference and Equivalent Methods:
Designation of Four New Equivalent Methods.**

AGENCY: Environmental Protection Agency.

ACTION: Notice of the designation of four new equivalent methods for monitoring ambient air quality.

SUMMARY: Notice is hereby given that the Environmental Protection Agency (EPA) has designated, in accordance with 40 CFR part 53, four new equivalent methods: one for measuring concentrations of nitrogen dioxide (NO₂), two for measuring ozone (O₃) and one for measuring concentrations of lead (Pb), in the ambient air.

FOR FURTHER INFORMATION CONTACT: Robert Vanderpool, Human Exposure and Atmospheric Sciences Division (MD-D205-03), National Exposure Research Laboratory, U.S. EPA, Research Triangle Park, North Carolina 27711. E-mail:

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SUPPLEMENTARY INFORMATION: In accordance with regulations at 40 CFR part 53, the EPA evaluates various methods for monitoring the concentrations of those ambient air pollutants for which EPA has established National Ambient Air Quality Standards (NAAQSs) as set forth in 40 CFR part 50. Monitoring methods that are determined to meet specific requirements for adequacy are designated by the EPA as either reference methods or equivalent methods (as applicable), thereby permitting their use under 40 CFR Part 58 by States and other agencies for determining compliance with the NAAQSs.

The EPA hereby announces the designation of one new equivalent method for measuring nitrogen dioxide (NO₂), two equivalent methods for measuring ozone (O₃) and one equivalent method for measuring concentrations of lead (Pb) in the ambient air. These designations are made under the provisions of 40 CFR part 53, as amended on August 31, 2011 (76 FR 54326- 54341).

The new equivalent method for NO₂ is an automated method (analyzer) utilizing the principle of Cavity Attenuated Phase Shift spectroscopy and the calibration procedure specified in

the operation manual. The newly designated equivalent method is identified as follows:

EQNA-0514-212, "Teledyne Advanced Pollution Instrumentation, Model T500U cavity attenuated phase shift spectroscopy Nitrogen Dioxide Analyzer", operated on any full scale range between 0-50 ppb and 0-1000 ppb, with any range mode (Single, Dual, or AutoRange), with a sample particulate filter, at any operating temperature from 5°C to 40°C, with the following software setting: Temperature and Pressure compensation ON; in accordance with the associated instrument manual, and with or without any of the following options: Zero/Span valves, internal Zero/Span permeation oven (IZS), external communication and data monitoring interfaces.

One new O₃ equivalent method is an automated monitoring method (analyzer) utilizing a measurement principle based on based on non-dispersive ultraviolet absorption photometry. The newly designated equivalent method is identified as follows:

EQOA-0514-214, "Teledyne Advanced Pollution Instrumentation, Model T204 NO_x + O₃ Analyzer", operated on any full scale range between 0-100 ppb and 0-500 ppb, at any operating temperature from 5°C to 40°C, with either a user-or

vendor-supplied vacuum pump capable of providing an absolute pressure of 10 inches mercury or less at 3 slpm, in accordance with the associated instrument manual, and with or without any of the following options: Zero/Span valves, external communication and data monitoring interfaces.

The application for the equivalent method determination for the NO₂ candidate method was received by the EPA on November 4, 2013 and ozone candidate method was received by the EPA on January 7, 2014. The analyzer models are commercially available from the applicant, Teledyne Advanced Pollution Instrumentation, 9480 Carroll Park Drive, San Diego, CA 92121-2251.

A second O₃ equivalent method is an automated monitoring method (analyzer) utilizing a measurement principle based on non-dispersive ultraviolet absorption photometry.

The designated equivalent method is identified as follows:

EQOA-0514-215, "2B Technologies Model 211 Scrubberless Ozone Monitor," operated in a range of 0 - 0.5 ppm in an environment of 20-30 °C, with temperature and pressure compensation, internal DewLine for humidity control, gas phase titration of ozone for interference-free measurements, using a 1

minute average, with a 110-220V AC power adapter or a 12V DC source, 8.0 to 12.0 watt power consumption, operated according to the Model 211 Scrubberless Ozone Monitor Operation Manual with either an external nitric oxide source or internal photolytic generator for production of NO scrubber gas from nitrous oxide, and with or without the following: cigarette lighter adapter or a 12V DC battery for portable operation, external PTFE inlet filter and holder, serial data port with computer cable, BNC connector for 0-2.5V or 4-20 mA scalable analog output, internal data logger, microFlash card for data recording and backup, rack mount hardware, and long life sample pump.

The application for an equivalent method determination for this candidate method was received by the EPA on January 14, 2014. The analyzer models are commercially available from the applicant, 2B Technology, Inc., 2100 Central Ave., Suite 105, Boulder, CO 80303.

The new equivalent method for Pb is a manual method that uses the sampling procedure specified in the Reference Method for the Determination of Lead in Suspended Particulate Matter

Collected From Ambient Air (High-Volume Sampler), 40 CFR Part 50, Appendix G, with a different extraction and analytical procedure. The method is identified as follows:

EQL-0514-213 *"Determination of Lead (Pb) on TSP Hi-Volume Filters by Microwave Assisted Digestion and Time of Flight Inductively Coupled Plasma Mass Spectrometry (TOF ICP-MS)."*

In this method, total suspended particulate matter (TSP) is collected on glass fiber filters, using the sampler and procedure of the EPA Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High-Volume Method) (40 CFR 50, Appendix B). The TSP sample is extracted with a solution of nitric acid and digested in a microwave digestion system at 175° C for 15 minutes, centrifuged for 30 minutes at 2000 rpm, and brought to a final acid concentration of 2-3%. The lead content of the sample extract is analyzed by Time of Flight Inductively Coupled Plasma Mass Spectrometry (TOF ICP-MS), based on EPA SW-846 Method 6010C.

The application for equivalent method determination for this Pb method was submitted by South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, CA 91765-4182 and was received by the EPA's Office of Research and

Development on May 18, 2012. The method descriptions will be available at <http://www.epa.gov/ttnamtl1/pb-monitoring.html>.

Test monitors representative of these methods have been tested in accordance with the applicable test procedures specified in 40 CFR part 53, as amended on August 31, 2011. After reviewing the results of those tests and other information submitted in the applications, EPA has determined, in accordance with Part 53, that these methods should be designated as equivalent methods.

As designated equivalent methods, these methods are acceptable for use by states and other air monitoring agencies under the requirements of 40 CFR part 58, Ambient Air Quality Surveillance. For such purposes, the methods must be used in strict accordance with the operation or instruction manuals associated with the methods and subject to any specifications and limitations (e.g., configuration or operational settings) specified in the applicable designated descriptions (see the identification of the methods above).

Use of the methods also should be in general accordance

with the guidance and recommendations of applicable sections of the "Quality Assurance Handbook for Air Pollution Measurement Systems, Volume I," EPA/600/R-94/038a and "Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II, Ambient Air Quality Monitoring Program" EPA-454/B-08-003, December, 2008. Provisions concerning modification of such methods by users are specified under Section 2.8 (Modifications of Methods by Users) of Appendix C to 40 CFR part 58.

Consistent or repeated noncompliance should be reported to: Director, Human Exposure and Atmospheric Sciences Division (MD-E205-01), National Exposure Research Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

Designation of these equivalent methods is intended to assist the States in establishing and operating their air quality surveillance systems under 40 CFR part 58. Questions concerning the commercial availability or technical aspects of the methods should be directed to the applicant.

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